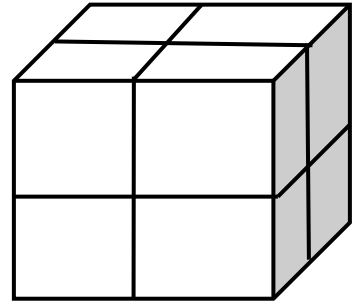


Painted Cubes

A cube with edges of length 2 centimeters is built from centimeter cubes. If you paint the faces of this cube and then break it into centimeter cubes, how many cubes will be painted on three faces? How many will be painted on two faces? On one face? How many will be unpainted? What if the edge has a length different from 2? What if the length of the edge is 3 cm? 4 cm? 5 cm? 50 cm? n cm?



Pattern Building

Some people describe mathematics as “the study of patterns.” For each tile pattern below, draw figures #1 and #5. First try it individually and then consult with your group. What does figure 100 look like? Explain how you know. Can you find a rule for the total number of blocks used?

a)

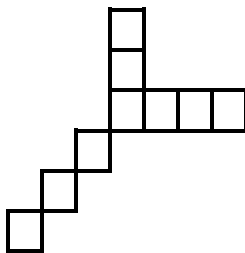


Figure 2

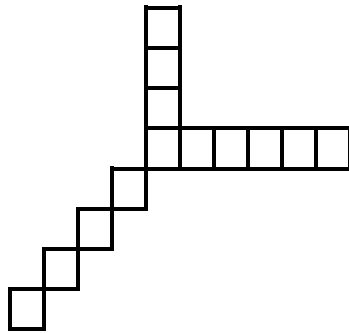


Figure 3

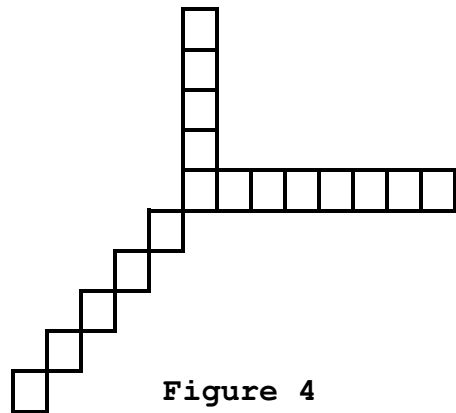


Figure 4

b)

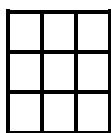


Figure 2

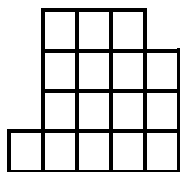


Figure 3

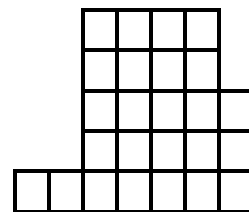


Figure 4

SQUARE UNITS

The following diagram shows an arrangement of squares that appeared on the cover of the November 1958 issue of *Scientific American*. If the area of square *C* is 64 square units and the area of square *D* is 81 square units, what are the areas of the other seven squares?

